

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.:

Group Art Unit:

Inventors: Bonaquist et al.

Filed: Concurrently

Title: Biological Refrigeration System

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In accordance with 37 CFR 1.51, 1.56 and 1.97 to 1.99, the following is a relevance statement on each citation listed on attached form PTO-1449, and is made of record to assist the Patent & Trademark Office in its examination of this application:

U.S. 4,300,356 – Notaro et al. discloses a refrigeration storage assembly for the storage of biological materials wherein a higher temperature mechanical refrigeration source and a very low temperature cryogenic liquid refrigeration source coact to maintain an intermediate low storage temperature. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

U.S. 6,076,372 – Acharya et al. discloses a method for generating refrigeration over a wide temperature range wherein a non-toxic, non-flammable and low or non-ozone-depleting mixture is formed from defined components and maintained in variable load form through compression, cooling, expansion and warming steps in a refrigeration cycle. There is no disclosure of a refrigeration

system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

U.S. 6,128,914 – Tamaoki et al. discloses a refrigerating apparatus composed of an insulating frame with a composite structure of a vacuum insulating panel and a foam insulating material, and insulating door, and a twin refrigerating apparatus which cools goods stored in the insulating frame. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

U.S. 6,205,794 – Brothers discloses a cryogenic storage device with an open top and a wall which defines an interior chamber adapted to receive biological specimens, having a fluid reservoir disposed around at least a portion of the wall on an outer surface of the wall for receiving a liquefied gaseous material such as liquid nitrogen. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

U.S. 6,327,865 – Bonaquist et al. discloses a refrigeration system wherein refrigeration is generated at a relatively steady output by a refrigeration circuit and passed into a coupling fluid for transfer to a refrigeration load using a coupling fluid stabilizing circuit having a stabilizing reservoir. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

U.S. 6,397,620 – Kelly et al. discloses an ultra-low temperature refrigeration system comprising a housing and a door which together define an interior storage compartment and which uses multiple layers of varying insulative materials to insulate the housing. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

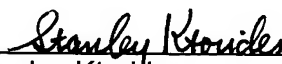
U.S. 6,426,019 – Acharya et al. discloses refrigerant mixtures useful for generating refrigeration over a wide temperature range which are non-toxic, non-flammable and low or non-ozone-depleting and which can be maintained in variable load form through compression, cooling, expansion and warming steps in a refrigeration cycle. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of

contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

U.S. 6,430,938 – Royal et al. discloses a cryogenic vessel system for containing cryogenic fluid wherein heat leak into the vessel interior is counteracted by refrigeration generated from energy provided by a pulse generator. There is no disclosure of a refrigeration system especially useful for refrigerating biological samples wherein a cryocooler, such as one employing a pressure wave from a pressure wave generator, is used to generate refrigeration for cooling liquid coolant or purging fluid, which is employed within hollow structures bordering an enclosed space of a storage unit or within the storage space of a storage unit and is subsequently cleaned of contaminants purged from the storage space, and thus this patent neither discloses nor suggests applicants' claimed invention.

A copy of each of the citations is enclosed herewith.

Respectfully submitted,

  
Stanley Ktorides  
Attorney for Applicants  
Reg. No. 29,399

Praxair, Inc.  
39 Old Ridgebury Road  
Danbury, CT 06810-5113  
Phone: (203) 837-2178

Attorney Ref.: D-21372

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<b>Information Disclosure Citation</b>  (Use several sheets if necessary)				Applicants Bonaquist et al.			
				Filing Date		Group	

U.S. PATENT DOCUMENTS													
Examiner Initial	Document Number								Date	Name	Class	Subclass	Filing Date if Appropriate
	4	3	0	0	3	5	6	11/1981	Notaro et al.	62	50		
	6	0	7	6	3	7	2	6/2000	Acharya et al.	62	606		
	6	1	2	8	9	1	4	10/2000	Tamaoki et al.	62	440		
	6	2	0	5	7	9	4	3/2001	Brothers	62	51.1		
	6	3	2	7	8	6	5	12/2001	Bonaquist et al.	62	79		
	6	3	9	7	6	2	0	6/2002	Kelly et al.	62	275		
	6	4	2	6	0	1	9	7/2002	Acharya et al.	252	67		
	6	4	3	0	9	3	8	8/2002	Royal et al.	62	6		

FOREIGN PATENT DOCUMENTS														
Examiner Initial	Document Number								Date	Country	Class	Subclass	Translation	
													Yes	No

Other Documents (including Author, Title, Date, Pertinent Pages, Etc.)

Examiner	Date Considered
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\* EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.